



Clinical practice

Overweight and the sexual assault forensic medical examination: A pressing problem

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ABSTRACT

This paper examines the problems faced by forensic physicians assessing overweight victim/survivors of sexual assault, using sample cases and reviewing the literature. This under-researched area is a minefield of practical difficulties and unanswered questions, with the need for solutions becoming more pressing as overweight becomes more common.

Overweight has the potential to alter injury patterns; the way forensic medical examinations are conducted; and injury and specimen interpretation. Pertinent questions include whether the “cushion effect” noted in motor vehicle accidents is relevant to sexual assault and how obesity-related comorbidities affect our ability to age injuries. Practical problems include positioning the client safely, obtaining clear views of areas of interest, and taking high-quality specimens.

Although overweight victims appear to be uncommon in sexual assault services, as the obesity epidemic progresses clinicians will need to address these issues.

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Case 1. An obese woman alleges penile–vaginal penetration. Because of her obesity it was difficult to:

- part the labia to examine the underlying structures;
- take vaginal swabs without touching the labia.

Case 2. An overweight man alleges penile–anal penetration. The anal examination was challenging because:

- his large pendulous buttocks were difficult to manipulate;
- faecal material obscured the area of interest;
- it was difficult to position him safely on the examination couch.

1. Introduction

These cases illustrate a mere handful of the problems faced by forensic physicians examining overweight survivors of sexual assault. There are both practical difficulties and unanswered questions, and the need for solutions becomes more pressing as the obesity epidemic progresses.

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There has been little research to date, but the problems can be analysed in six phases:

- Phase 1. Looking at the bigger picture
- Phase 2. During the assault – how trauma is sustained
- Phase 3. During the assault – the body's response to trauma
- Phase 4. After the assault – how wounds heal
- Phase 5. Performing the examination
- Phase 6. Interpreting the examination findings

Although this discussion concentrates on adult sexual assault, many of the comments are pertinent to physical assault and to children.

2. Phase 1. The bigger picture

Weight is not routinely recorded in all jurisdictions and healthcare practitioners are poor judges of weight (in one study, doctors “eyeballed” 25% of overweight patients as normal¹). This makes it difficult to determine the proportion of overweight clients and study overweight and injury patterns. Anecdotal evidence suggests that overweight clients are uncommonly seen by sexual assault services, and there are a number of potential explanations for this:

- Under-reporting. Both sexual assault and overweight are associated with feelings of shame,^{2,3} perhaps creating a cumulative burden of shame that reduces the likelihood of disclosure. Weight problems are also linked to feelings of worthlessness and inferiority,⁴ so overweight victims may feel they “deserved” the assault and be less likely to come forward. Victims who do disclose may therefore require more counseling and support when liaising with police, undergoing a forensic examination, and attending court.
- Lower risk of sexual assault. Perhaps perpetrators are less likely to target overweight adults. Some papers link between current overweight and past domestic violence and/or sexual assault,^{5,6} but some researchers have postulated that abused women gain weight afterwards in order to reduce their attractiveness to perpetrators.⁷

The decision to measure body habitus must, of course, be balanced against the distress this could cause.

Another issue is how overweight affects juries. A study of 173 university students reviewing hypothetical sexual assault cases found they were less likely to blame an overweight victim and recommended longer sentences for perpetrators.⁸

3. Phase 2. During the assault – how trauma is sustained

A Medline search failed to yield any papers addressing the dynamics of an assault where the victim is overweight. The following questions, therefore, appear to be unanswered:

- Does their larger size – and obesity-related comorbidities such as arthritis – render them less able to protect themselves or escape and therefore more prone to injury?
- Obesity is a known risk factor for accidental injury, especially sprains and some fractures.^{9,10} Could overweight assault victims be more likely to sustain these injuries?
- Could the assault trigger or exacerbate underlying obesity-related conditions, such as angina?
- Is there less risk of bruising from blunt force, with a protective effect from extra subcutaneous fat? For example, could the fat help dissipate the force or make it less likely that skin becomes pressed against bone? Are some areas of the body particularly protected from trauma, such as the chest wall under large breasts? A “cushion effect” has been noted in motor vehicle accidents, with lower injury severity scores and less severe abdominal injuries but more thoracic, head, and extremity injuries in overweight people.¹¹ (This may also be an effect of the different ways their bodies move in response to external forces: in a small cadaver study of car crashes, for example, obese subjects had greater maximum forward excursion before their motion was arrested by the restraint and a substantially larger hip excursion and concomitant decreased torso pitch.¹²)
- On the other hand, if there are more “handfuls” of flesh to grasp, is the incidence of fingerprint bruises higher?
- Is sharp force trauma less likely to penetrate to vital underlying tissues?
- Is it more difficult for the offender to remove clothing and is the incidence of damaged clothing higher?
- Obesity is associated with a decreased risk of osteoporosis¹¹: could this reduce the risk of traumatic fractures during assaults on older people?
- What are the effects of any underlying cause of morbidity? For example, there may be a greater risk of bruising with obesity related to corticosteroid use or Prader Willi syndrome.

- Is there a higher rate of failed penetration of the vagina or anus, with more injuries to surrounding tissues and less chance of DNA evidence on vaginal/anal swabs?

4. Phase 3. During the assault – the body’s response to trauma

Again, there is a dearth of literature looking at questions such as whether fatty liver can cause coagulopathy, thus increasing the risk of bruising and bleeding, or whether the prothrombotic tendency of abdominal fat¹³ would reduce the risk.

5. Phase 4. After the assault – how wounds heal

Some obesity-related conditions, including common conditions such as type 2 diabetes mellitus and peripheral vascular disease, are associated with a higher risk of impaired wound healing and complications such as infection. An obesogenic diet may also lead to micronutrient deficiencies, such as zinc deficiency, that could adversely affect healing. Additionally, some conditions that cause obesity – such as corticosteroid use – may interfere with wound healing. However, in their review Chesser et al. reported mixed findings about whether surgical wounds in obese patients heal more slowly, have higher infection rates, have more early complications, or have poorer medium to long-term outcomes.¹¹

The relevance of surgical research to wounds sustained during an assault is not clear.

6. Phase 5. Performing the examination

Examining overweight victims can be challenging:

- Overweight people can have negative body images and poor self-esteem and may have had negative encounters with healthcare professionals. Clinicians and counsellors need to be sensitive to this.
- There may be technical challenges including having chairs wide enough for people to sit comfortably; having a wide examination couch that is height adjustable and rated to take overweight people; getting the victim safely on and off the examination couch; safely repositioning the victim during the examination; getting adequate lighting that does not cast shadows on areas of interest (e.g. flexible lights on mobile stands or vaginal speculums with in-built light sources); and choosing an appropriately-sized vaginal speculum, such as one designed for use in obese women, and proctoscope (see Table 1 for tips).
- It may be necessary to ask an assistant or the victim for help, for example, to lift a fold of abdominal skin or part the buttocks. This may create further problems of having access to appropriately trained personnel and minimising any embarrassment for the victim.
- When taking pictures, a tripod or assistant may be needed to free the examiner to position the victim.
- It may be harder to identify injuries in overweight victims, both on clinical examination and with imaging.¹¹
- Obese victims may not be able to tolerate the lithotomy position, which can compromise chest and abdominal movement: the lateral decubitus position may therefore be a better alternative¹⁴ or examining the person propped semi-upright on the examination couch or in a colposcopy chair.
- If folds of fat trap semen for longer, it may be reasonable to extend standard timeframes for taking samples; on the other

Table 1
Techniques for difficult internal examinations.

Careful positioning of the victim is usually the key to success.

1. Speculum examinations

The two most common problems encountered when trying to visualise the cervix are (i) not being able to reach it and (ii) not being able to achieve or maintain visual contact because lax vaginal walls obscure the view. Asking the woman up front how her usual doctor does her Pap smears can provide a useful guide. Alternatively, try the techniques below.

Ideally, a range of speculums should be available, including long and extra-long, large and supersize, and combinations of these. More than one technique may be required.

Tips for poor visualisation:

Use a long or an extra-long speculum.

Have the woman tilt her pelvis by putting both fists under her hips; if this is too difficult or uncomfortable, use a pillow instead (this can be doubled over if necessary) or a rolled-up towel.

If there is an apron of abdominal fat, ask the woman to lift it up.

Insert the speculum with the handle up (180° from normal).

Have an assistant hold the labia out of the way.

Use stirrups, enabling you to get as close to the vulva as possible. If you are approaching the bed from the side, stand on a stool to help you get over the near leg.

Consider a digital examination to determine the location of the cervix and guide your angle of entry (document your actions carefully and the state of the vulva before and afterwards).

Tips for lax vaginal walls:

Open the speculum only as wide as is needed to identify the cervix.

Try a wider speculum.

Cut the finger off a size 8 sterile glove, or get a condom. Cut the tip off and put it over the speculum.

Dismantle two metal speculums and get an assistant to use the lower halves from each to retract the lateral vaginal walls.

Try the left lateral decubitus position. You can combine this with a Sims speculum.

2. Proctoscopic examinations

Have a range of sizes of proctoscopes available.

Have an assistant on either side of the bed, to protect the victim from a fall. Flex the hips somewhat but don't flex the knees. Have the assistant on the far side of the bed elevate the top buttock.

If this fails, use the knee–chest position, with the hips flexed as far as possible, again with an assistant elevating the top buttock (however, the victim may not be able to tolerate this).

Note: The need for a proctoscopic examination must be carefully weighed against the distress it could cause.

hand, trace evidence in skin folds could be much harder to obtain, becoming overwhelmed by cells shed by the client (M. Franco, NSW Health Division of Analytical Laboratories, personal communication, 2011). Clinicians may need to liaise with their laboratories regarding individual cases, which may not be possible out of hours.

- Clinicians need to carefully differentiate injury from pre-existing pathology, such as fungal infections, macerated skin, friction dermatitis, insulin injection sites, stretch marks, acne, and arthritic joints.
- Some overweight people have difficulty maintaining personal hygiene; this can occur at lower weights with developmentally delayed people.¹⁵ Apart from the obvious problem of embarrassment, there is the further issue of taking good quality specimens. Faecal contamination can make it harder to obtain DNA from the perpetrator. This is especially true when the perpetrator and victim are both male, because laboratory staff cannot preferentially select the Y chromosome from two males, as they can with a male-to-female assault. Using a vaginal speculum or a proctoscope or obtaining the underpants worn immediately after the assault may therefore be more than ordinarily important. Once samples have been taken, areas of interest must be properly cleaned before being examined for injuries and equipment for doing this must be at hand.

- It may be difficult to get blood samples from overweight people.

7. Phase 6. Interpreting the examination findings

It is important to acknowledge to the court any limitations on the examination, for example, whether it was difficult to see clearly or obtain uncontaminated specimens.

It is impossible to quantify to what extent conditions such as peripheral vascular disease or corticosteroid use could delay wound healing and affect our ability to estimate the age of injuries. It would therefore seem prudent not to comment on ageing in such circumstances, or at least to alert the court to problems with the reliability of any conclusions.

Body habitus can, of course, affect the interpretation of some toxicology specimens – weight is important for back calculations of blood alcohol levels using the total body water method, for example – and this may be very important in court.

8. Summary

For reasons that are not clear, overweight victims are uncommon in sexual assault services. We do not know whether overweight affects the patterns of injury seen in sexual assault, as it does with high-speed trauma, or how overweight affects injury interpretation. Practical problems during a forensic medical examination include positioning the victim safely, obtaining clear views of areas of interest, and taking high-quality uncontaminated.

As overweight becomes more common, researchers and clinicians will need to address these issues.

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